Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1. (Currently Amended) An image sensing apparatus using an image sensing element which has a plurality of pixels arrayed in horizontal and vertical directions, wherein:

the image sensing element includes an effective pixel area which outputs signal of an object image, a first reference pixel area which outputs a first reference signal, and a second reference pixel area which outputs a second reference signal,

wherein a pixel in the first reference pixel area is shielded from light and does not have a photoelectric conversion element, and

wherein a pixel in the second reference pixel area is shielded from light and has a photo-electric conversion element and outputs a signal including dark current component generated in the photoelectric conversion element,

said image sensing apparatus comprising:

a first correction unit ~~adapted to correct~~ that corrects signals of the effective pixel area by subtracting the first reference signal from each horizontal line signal of the effective pixel area with respect to each corresponding horizontal line; and

a second correction unit ~~adapted to correct~~ that uniformly corrects signals of the entire effective pixel area, which are corrected by said first correction unit, by evenly subtracting a representative value, which is based on the second reference signal, from the signals of the

plurality of horizontal lines of the effective pixel area.

2. (Original) The apparatus according to claim 1, wherein

the first reference signal includes a signal free from influence of a signal converted by a photoelectric conversion element of the image sensing element, and

the second reference signal includes a signal containing a dark current component generated in the photoelectric conversion element of the image sensing element.

3. (Original) The apparatus according to claim 2, wherein the second reference signal includes a signal obtained in a region which includes the photoelectric conversion element in the image sensing element and is shielded from incident light.

4. (Original) The apparatus according to claim 3, wherein the first reference signal includes a signal obtained in a region which does not include the photoelectric conversion element in the image sensing element.

5. (Original) The apparatus according to claim 3, wherein the first reference signal includes a signal output from a reference power supply for each row of the predetermined pixel region.

6. (Previously Presented) The apparatus according to claim 1, wherein said second correction unit has a storage device which stores the signal from the effective pixel area, a calculation device which calculates a representative value of the second reference signal, and a subtraction device which subtracts the representative value of the second reference signal that is calculated by the calculation device, from the signal from the effective pixel area that is stored in the storage device.

7. (Preciously Presented) The apparatus according to claim 6, wherein the calculation device has a calculation which calculates representative values of the second reference signal for a plurality of regions obtained by dividing the region which includes the photoelectric conversion element in the image sensing element and is shielded from incident light, and a device which outputs to the subtraction device a lowest value among the representative values of the plurality of regions that are calculated by the calculation device.

8. (Original) The apparatus according to claim 6, wherein the representative value includes any one of an average value, a median, and a mode.

9-10. (Cancelled)